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1916

DEPARTMENT OF COMMERCE

U. S. COAST AND GEODETIC SURVEY

E. LESTER JONES, SUPERINTENDENT

TIDAL CURRENTS

(PACIFIC COAST)

FOR THE YEAR

1916

PREDICTED TIMES OF SLACK WATER AT
SAN FRANCISCO BAY ENTRANCE; AND
AT ADMIRALTY INLET, WASH.

WITH DIFFERENCES GIVING SLACK WATER AT NEAR-BY PLACES

(Similar predictions for Seymour Narrows, B. C., and Sergius Narrows
Alaska, are given upon pages 501-511 of the Tide Tables for 1916)



WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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1916

REMOTE STORAGE

TIDAL CURRENTS, PACIFIC COAST, FOR THE YEAR 1916.

The following special current tables for the Pacific coast in the vicinity of San Francisco and Puget Sound are published in order to make immediately available information relative to currents from observations of the Coast and Geodetic Survey. Further information will be added as rapidly as observations are available.

In this volume the times of slack water are predicted for every day of the year 1916 for San Francisco Bay Entrance and for Admiralty Inlet, Wash.

These tables are followed by a list of differences, by means of which the time of slack water may be obtained from the daily predictions for a large number of other points.

Beginning with the year 1917 these current tables will be included in the Pacific Coast Tide Tables, published by the Coast and Geodetic Survey, which furnish in a handy form, at a nominal cost of 10 cents, full tidal data for the Pacific coast of North America, Alaska, eastern Asia, and many island groups. Special attention is invited to the Pacific coast tide tables, as furnishing the known reliable information relative to tides and currents most needed by navigators, and which are sufficient to meet the local needs of navigators for the Pacific coast of the United States and Alaska.

These current tables will also be included in the General Tide Tables, which give the tides and other data for the entire world and which are furnished at a cost of 50 cents.

Beginning with the year 1917 both of these tide tables have been greatly enlarged and simplified. Considerable additional information along tidal and current lines has been added, and all has been put in a form specially adapted for the use of mariners and others using the tables.

Navigators and others are invited at all times to send information or suggestions for increasing the usefulness of the tide tables of the Survey to the "Superintendent, United States Coast and Geodetic Survey, Washington, D. C."

E. LESTER JONES,
Superintendent.

20 Oct 27 main

27 J 16 Dist. J. 1916 cont

SAN FRANCISCO ENTRANCE (GOLDEN GATE), CALIFORNIA, 1916.

TIMES OF SLACK WATER.

JANUARY.					FEBRUARY.					MARCH.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	W-E.	E-W.	W-E.	E-W.		W-E.	E-W.	W-E.	E-W.		W-E.	E-W.	W-E.	E-W.
1	2:28	8:55	4:24	11:20	1	4:26	10:28	5:52	. . .	1	4:27	10:24	5:30	11:59
2	3:29	9:46	5:17	. . .		E-W.	W-E.	E-W.	W-E.	2	5:23	11:21	6:12	. . .
	E-W.	W-E.	E-W.	W-E.	2	0:32	5:24	11:24	6:36		E-W.	W-E.	E-W.	W-E.
3	0:04	4:29	10:36	6:07	3	1:12	6:20	12:15	7:19	3	0:33	6:13	12:15	6:51
4	0:55	5:27	11:28	6:53	4	1:49	7:12	1:08	8:00	4	1:07	7:02	1:05	7:29
5	1:41	6:23	12:20	7:40	5	2:26	8:04	2:03	8:38	5	1:41	7:50	1:56	8:06
6	2:24	7:19	1:12	8:25	6	3:02	8:58	2:55	9:17	6	2:16	8:39	2:48	8:42
7	3:06	8:16	2:05	9:08	7	3:42	9:48	3:51	9:57	7	2:51	9:30	3:44	9:18
8	3:49	9:15	3:02	9:52	8	4:22	10:55	4:55	10:37	8	3:29	10:25	4:48	9:56
9	4:31	10:18	4:02	10:36	9	5:06	12:03	6:13	11:21	9	4:09	11:25	6:06	10:40
10	5:16	11:27	5:09	11:22	10	5:54	1:15	7:48	. . .	10	4:54	12:31	7:36	11:40
11	6:02	12:40	6:28	. . .		W-E.	E-W.	W-E.	E-W.	11	5:46	1:36	9:00	. . .
	W-E.	E-W.	W-E.	E-W.	11	0:15	6:46	2:24	9:22		W-E.	E-W.	W-E.	E-W.
12	0:10	6:50	1:53	7:58	12	1:22	7:40	3:25	10:33	12	0:58	6:48	2:35	9:55
13	1:02	7:38	3:00	9:27	13	2:35	8:34	4:15	11:21	13	2:19	7:51	3:25	10:33
14	2:00	8:26	4:00	10:44	14	3:39	9:24	4:56	11:56	14	3:21	8:50	4:09	11:01
15	2:58	9:12	4:48	11:44	15	4:30	10:10	5:32	. . .	15	4:10	9:42	4:46	11:26
16	3:55	9:53	5:30	. . .		E-W.	W-E.	E-W.	W-E.	16	4:50	10:31	5:20	11:48
	E-W.	W-E.	E-W.	W-E.	16	0:24	5:12	10:51	6:05	17	5:27	11:16	5:53	. . .
17	0:30	4:45	10:34	6:07	17	0:48	5:49	11:32	6:35		E-W.	W-E.	E-W.	W-E.
18	1:07	5:27	11:10	6:40	18	1:10	6:25	12:12	7:04	18	0:11	6:03	12:01	6:24
19	1:38	6:06	11:46	7:11	19	1:32	7:00	12:53	7:34	19	0:34	6:42	12:47	6:56
20	2:05	6:42	12:23	7:39	20	1:55	7:40	1:36	8:04	20	1:01	7:22	1:34	7:27
21	2:28	7:19	1:00	8:10	21	2:20	8:22	2:23	8:35	21	1:30	8:07	2:25	8:01
22	2:52	7:57	1:41	8:40	22	2:49	9:10	3:15	9:07	22	2:03	8:56	3:21	8:36
23	3:16	8:41	2:25	9:10	23	3:23	10:05	4:16	9:42	23	2:41	9:50	4:26	9:17
24	3:43	9:30	3:16	9:42	24	4:03	11:08	5:29	10:24	24	3:26	10:52	5:43	10:08
25	4:15	10:27	4:14	10:19	25	4:51	12:21	7:03	11:19	25	4:20	12:01	7:10	11:20
26	4:51	11:32	5:27	10:58	26	5:52	1:38	8:40	. . .	26	5:28	1:13	8:24	. . .
27	5:35	12:45	6:54	11:47		W-E.	E-W.	W-E.	E-W.		W-E.	E-W.	W-E.	E-W.
28	6:30	2:00	8:34	. . .	27	0:37	7:02	2:48	9:51	27	0:51	6:47	2:21	9:20
	W-E.	E-W.	W-E.	E-W.	28	2:05	8:16	3:50	10:41	28	2:17	8:07	3:21	10:04
29	0:49	7:28	3:10	10:00	29	3:23	9:23	4:42	11:22	29	3:27	9:19	4:13	10:42
30	2:02	8:30	4:10	11:03						30	4:26	10:22	5:00	11:17
31	3:18	9:30	5:04	11 52						31	5:18	11:20	5:40	11:51

The time used is Pacific Standard, for the meridian 120° west. The afternoon slacks are denoted by heavy-faced type.

When it is high water at San Francisco (Tide Tables, pp. 153-156), the current is running easterly, and when it is low water, westerly.

SAN FRANCISCO ENTRANCE (GOLDEN GATE), CALIFORNIA, 1916.

TIMES OF SLACK WATER.

APRIL.					MAY.					JUNE.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	W-E.	E-W.	W-E.	E-W.		W-E.	E-W.	W-E.	E-W.		E-W.	W-E.	E-W.	W-E.
1	6:05	12:13	6:19	. . .	1	6:41	1:09	6:21	. . .	1	0:18	7:51	2:57	7:10
	E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.	2	0:52	8:28	3:42	7:50
2	0:24	6:51	1:05	6:55	2	0:18	7:25	2:03	6:57	3	1:25	9:03	4:23	8:34
3	0:58	7:36	1:56	7:30	3	0:50	8:07	2:55	7:33	4	2:01	9:39	4:59	9:24
4	1:31	8:22	2:49	8:05	4	1:23	8:49	3:50	8:11	5	2:41	10:14	5:32	10:20
5	2:04	9:09	3:46	8:42	5	1:56	9:31	4:46	8:53	6	3:30	10:51	6:03	11:22
6	2:38	9:58	4:49	9:21	6	2:32	10:13	5:40	9:46	7	4:28	11:30	6:35	. .
7	3:16	10:49	6:00	10:10	7	3:12	10:58	6:30	10:52		W-E.	E-W.	W-E.	E-W.
8	3:58	11:43	7:13	11:17	8	4:01	11:43	7:11	. . .	8	0:26	5:37	12:13	7:09
9	4:48	12:39	8:13	. . .		W-E.	E-W.	W-E.	E-W.	9	1:28	6:55	12:59	7:43
	W-E.	E-W.	W-E.	E-W.	9	0:06	5:02	12:29	7:47	10	2:27	8:15	1:46	8:21
10	0:39	5:51	1:34	8:56	10	1:14	6:15	1:16	8:18	11	3:23	9:30	2:35	9:01
11	1:54	7:03	2:23	9:29	11	2:12	7:30	2:02	8:48	12	4:16	10:40	3:26	9:44
12	2:57	8:11	3:08	9:56	12	3:04	8:41	2:46	9:18	13	5:07	11:43	4:18	10:29
13	3:40	9:12	3:50	10:21	13	3:52	9:46	3:30	9:50	14	5:56	12:41	5:11	11:16
14	4:22	10:08	4:27	10:47	14	4:37	10:47	4:14	10:24	15	6:44	1:34	6:05	. . .
15	5:02	11:01	5:05	11:14	15	5:22	11:45	4:56	11:00		E-W.	W-E.	E-W.	W-E.
16	5:42	11:52	5:40	11:43	16	6:09	12:42	5:38	11:40	16	0:04	7:32	2:25	7:00
17	6:24	12:43	6:16	. . .	17	6:56	1:38	6:23	. . .	17	0:55	8:20	3:14	7:59
	E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.	18	1:48	9:08	4:00	9:01
18	0:15	7:08	1:35	6:53	18	0:22	7:44	2:35	7:11	19	2:45	9:56	4:47	10:07
19	0:50	7:55	2:30	7:31	19	1:06	8:34	3:33	8:04	20	3:47	10:46	5:33	11:18
20	1:28	8:45	3:30	8:15	20	1:56	9:26	4:29	9:06	21	4:56	11:35	6:20	. . .
21	2:12	9:39	4:35	9:07	21	2:52	10:19	5:24	10:15		W-E.	E-W.	W-E.	E-W.
22	3:03	10:37	5:46	10:12	22	3:55	11:15	6:18	11:32	22	0:32	6:12	12:26	7:07
23	4:03	11:40	6:52	11:34	23	5:06	12:11	7:07	. . .	23	1:45	7:35	1:18	7:53
24	5:15	12:44	7:51	. . .		W-E.	E-W.	W-E.	E-W.	24	2:53	8:59	2:11	8:38
	W-E.	E-W.	W-E.	E-W.	24	0:52	6:25	1:07	7:54	25	3:53	10:17	3:04	9:22
25	1:00	6:37	1:46	8:39	25	2:05	7:47	2:01	8:37	26	4:46	11:27	3:56	10:03
26	2:17	7:58	2:43	9:21	26	3:10	9:05	2:53	9:18	27	5:33	12:25	4:45	10:43
27	3:23	9:12	3:35	9:59	27	4:08	10:17	3:41	9:57	28	6:16	1:16	5:31	11:20
28	4:19	10:19	4:22	10:36	28	5:00	11:22	4:27	10:34	29	6:54	1:58	6:14	11:56
29	5:10	11:19	5:05	11:11	29	5:47	12:22	5:11	11:10	30	7:28	2:35	6:54	. . .
30	5:56	12:15	5:44	11:45	30	6:30	1:17	5:51	11:45					
					31	7:12	2:09	6:30	. . .					

High high waters indicate strong east-going streams, and low low waters strong west-going streams.
 The ordinary maximum velocity of the flood or east-going stream at the center of the channel is 3.3 knots,
 and of the ebb or west-going stream 3.4 knots.

SAN FRANCISCO ENTRANCE (GOLDEN GATE), CALIFORNIA, 1916.

TIMES OF SLACK WATER.

JULY.					AUGUST.					SEPTEMBER.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.
1	0:30	8:02	3:08	7:33	1	1:32	8:23	2:58	8:30	1	2:58	8:43	2:55	9:40
2	1:05	8:32	3:35	8:14	2	2:13	8:52	3:22	9:15	2	3:55	9:15	3:33	10:40
3	1:43	9:02	4:02	8:58	3	3:00	9:22	3:51	10:06	3	5:05	9:55	4:18	11:47
4	2:24	9:33	4:28	9:46	4	3:56	9:54	4:24	11:05		W-E.	E-W.	W-E.	E-W.
5	3:12	10:05	4:55	10:40	5	5:02	10:31	5:06	. . .	4	6:33	10:48	5:16	. . .
6	4:07	10:40	5:27	11:42		W-E.	E-W.	W-E.	E-W.	5	1:01	8:05	12:02	6:28
7	5:13	11:18	6:03	. . .	6	0:13	6:23	11:16	5:55	6	2:11	9:17	1:30	7:40
	W-E.	E-W.	W-E.	E-W.	7	1:25	8:00	12:13	6:55	7	3:15	10:07	2:50	8:52
8	0:48	6:31	12:02	6:46	8	2:35	9:25	1:27	7:57	8	4:09	10:48	3:57	9:55
9	1:54	7:59	12:52	7:33	9	3:38	10:31	2:43	9:00	9	4:57	11:25	4:54	10:55
10	2:59	9:24	1:50	8:24	10	4:32	11:20	3:53	10:00	10	5:41	12:01	5:45	11:50
11	3:57	10:38	2:53	9:16	11	5:23	12:03	4:56	10:58	11	6:22	12:35	6:35	. . .
12	4:51	11:39	3:57	10:09	12	6:08	12:40	5:51	11:53		E-W.	W-E.	E-W.	W-E.
13	5:42	12:29	4:58	11:03	13	6:51	1:18	6:45	. . .	12	0:40	7:02	1:10	7:25
14	6:29	1:15	5:56	11:56		E-W.	W-E.	E-W.	W-E.	13	1:35	7:40	1:47	8:14
15	7:12	1:58	6:52	. . .	14	0:45	7:34	1:55	7:38	14	2:30	8:18	2:25	9:06
	E-W.	W-E.	E-W.	W-E.	15	1:38	8:13	2:33	8:30	15	3:27	8:58	3:05	10:05
16	0:49	8:00	2:39	7:48	16	2:33	8:55	3:12	9:27	16	4:34	9:39	3:46	11:03
17	1:43	8:43	3:20	8:50	17	3:32	9:35	3:53	10:28	17	5:53	10:30	4:34	. . .
18	2:40	9:27	4:03	9:48	18	4:36	10:17	4:38	11:34		W-E.	E-W.	W-E.	E-W.
19	3:39	10:11	4:45	10:54	19	5:53	11:03	5:28	. . .	18	0:08	7:18	11:34	5:31
20	4:45	10:56	5:30	. . .		W-E.	E-W.	W-E.	E-W.	19	1:14	8:36	12:57	6:35
	W-E.	E-W.	W-E.	E-W.	20	0:46	7:24	12:01	6:23	20	2:14	9:32	2:15	7:42
21	0:04	6:00	11:44	6:19	21	1:56	8:53	1:10	7:22	21	3:06	10:11	3:17	8:43
22	1:18	7:27	12:36	7:09	22	3:00	10:05	2:23	8:19	22	3:50	10:42	4:04	9:34
23	2:27	8:58	1:34	8:00	23	3:53	10:55	3:29	9:12	23	4:27	11:07	4:43	10:22
24	3:30	10:17	2:36	8:50	24	4:37	11:34	4:22	10:00	24	5:03	11:30	5:18	11:07
25	4:25	11:22	3:42	9:38	25	5:15	12:04	5:05	10:43	25	5:33	11:52	5:52	11:50
26	5:11	12:12	4:31	10:20	26	5:48	12:30	5:42	11:23	26	6:03	12:14	6:28	. . .
27	5:50	12:50	5:19	11:02	27	6:19	12:52	6:16	. . .		E-W.	W-E.	E-W.	W-E.
28	6:25	1:23	6:00	11:38		E-W.	W-E.	E-W.	W-E.	27	0:34	6:33	12:38	7:05
29	6:58	1:50	6:37	. . .	28	0:02	6:48	1:13	6:50	28	1:19	7:03	1:04	7:47
	E-W.	W-E.	E-W.	W-E.	29	0:42	7:15	1:33	7:26	29	2:08	7:33	1:35	8:32
30	0:15	7:28	2:14	7:12	30	1:23	7:43	1:56	8:05	30	3:02	8:07	2:11	9:23
31	0:53	7:55	2:35	7:48	31	2:08	8:12	2:23	8:50					

The time used is Pacific Standard, for the meridian 120° west. The afternoon slacks are denoted by heavy-faced type.

When it is high water at San Francisco (Tide Tables, pp. 153-156), the current is running easterly, and when it is low water, westerly.

SAN FRANCISCO ENTRANCE (GOLDEN GATE), CALIFORNIA, 1916.

TIMES OF SLACK WATER.

OCTOBER.					NOVEMBER.					DECEMBER.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.		E-W.	W-E.	E-W.	W-E.
1	4:03	8:46	2:53	10:21	1	6:20	10:53	4:36	. . .	1	6:31	12:11	5:46	. . .
2	5:16	9:35	3:45	11:26		W-E.	E-W.	W-E.	E-W.		W-E.	E-W.	W-E.	E-W.
3	6:42	10:43	4:50	. . .	2	0:07	7:18	12:20	5:57	2	0:30	7:20	1:28	7:10
	W-E.	E-W.	W-E.	E-W.	3	1:08	8:06	1:42	7:21	3	1:25	8:05	2:40	8:35
4	0:35	7:57	12:14	6:08	4	2:06	8:50	2:51	8:40	4	2:20	8:48	3:41	9:52
5	1:43	8:46	1:43	7:30	5	3:00	9:29	3:51	9:52	5	3:12	9:30	4:36	11:01
6	2:45	9:30	2:55	8:47	6	3:50	10:06	4:44	10:54	6	4:01	10:10	5:26	. . .
7	3:38	10:08	3:56	9:53	7	4:35	10:43	5:32	11:53		E-W.	W-E.	E-W.	W-E.
8	4:25	10:45	4:50	10:54	8	5:16	11:19	6:20	. . .	7	0:03	4:43	10:50	6:12
9	5:10	11:21	5:39	11:49		E-W.	W-E.	E-W.	W-E.	8	0:58	5:33	11:28	6:55
10	5:50	11:55	6:26	. . .	9	0:49	5:57	11:55	7:04	9	1:49	6:16	12:05	7:35
	E-W.	W-E.	E-W.	W-E.	10	1:44	6:35	12:30	7:48	10	2:35	6:57	12:40	8:13
11	0:43	6:28	12:30	7:13	11	2:38	7:15	1:05	8:32	11	3:20	7:40	1:17	8:49
12	1:37	7:05	1:05	8:00	12	3:33	7:55	1:41	9:15	12	4:00	8:25	1:54	9:23
13	2:32	7:43	1:40	8:48	13	4:30	8:42	2:19	9:57	13	4:37	9:14	2:32	9:58
14	3:31	8:22	2:17	9:38	14	5:23	9:38	3:00	10:41	14	5:12	10:07	3:17	10:32
15	4:35	9:06	2:58	10:30	15	6:12	10:44	3:50	11:25	15	5:43	11:07	4:08	11:09
16	5:45	10:00	3:43	11:25	16	6:55	11:57	4:48	. . .	16	6:15	12:11	5:14	11:43
17	6:57	11:12	4:36	. . .		W-E.	E-W.	W-E.	E-W.	17	6:43	1:13	6:31	. . .
	W-E.	E-W.	W-E.	E-W.	17	0:10	7:32	1:08	6:00		W-E.	E-W.	W-E.	E-W.
18	0:21	7:56	12:36	5:41	18	0:55	8:04	2:07	7:16	18	0:32	7:23	2:13	7:55
19	1:16	8:39	1:53	6:55	19	1:41	8:33	2:56	8:27	19	1:18	8:00	3:09	9:15
20	2:04	9:13	2:49	8:02	20	2:25	9:02	3:40	9:33	20	2:08	8:40	4:00	10:25
21	2:50	9:40	3:34	9:02	21	3:08	9:32	4:25	10:35	21	3:00	9:23	4:50	11:28
22	3:29	10:05	4:13	9:57	22	3:50	10:04	5:08	11:32	22	3:53	10:08	5:37	. . .
23	4:06	10:30	4:52	10:49	23	4:31	10:38	5:51	. . .		E-W.	W-E.	E-W.	W-E.
24	4:43	10:56	5:29	11:38		E-W.	W-E.	E-W.	W-E.	23	0:23	4:48	10:54	6:23
25	5:16	11:21	6:08	. . .	24	0:26	5:14	11:16	6:35	24	1:13	5:40	11:43	7:09
	E-W.	W-E.	E-W.	W-E.	25	1:20	5:56	11:57	7:22	25	2:00	6:34	12:30	7:54
26	0:27	5:50	11:52	6:48	26	2:12	6:43	12:41	8:09	26	2:44	7:29	1:22	8:40
27	1:18	6:25	12:24	7:32	27	3:05	7:33	1:28	8:58	27	3:28	8:28	2:17	9:26
28	2:12	7:02	1:01	8:19	28	3:58	8:32	2:21	9:48	28	4:12	9:29	3:15	10:12
29	3:09	7:44	1:43	9:11	29	4:50	9:37	3:20	10:40	29	4:57	10:36	4:21	11:00
30	4:10	8:33	2:30	10:06	30	5:43	10:52	4:28	11:35	30	5:42	11:50	5:34	11:50
31	5:16	9:36	3:27	11:05						31	6:30	1:07	7:00	. . .

High high waters indicate strong east-going streams, and low low waters strong west-going streams.
The ordinary maximum velocity of the flood or east-going stream at the center of the channel is 3.3 knots,
and of the ebb or west-going stream 3.4 knots.

ADMIRALTY INLET, WASHINGTON, 1916.

TIMES OF SLACK WATER.

JANUARY.					FEBRUARY.					MARCH.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.
1	3:10	6:56	12:26	8:20	1	4:32	9:37	2:14	9:45	1	3:53	9:33	2:31	9:28
2	4:08	8:20	1:19	9:10	2	5:10	10:35	3:22	10:32	2	4:28	10:22	3:40	10:16
3	4:56	9:37	2:16	9:58	3	5:46	11:26	4:26	11:16	3	5:02	11:06	4:41	11:01
4	5:39	10:42	3:15	10:45	4	6:20	12:15	5:26	11:59	4	5:36	11:49	5:38	11:43
5	6:19	11:41	4:14	11:30	5	6:54	1:02	6:25	. . .	5	6:08	12:31	6:34	. . .
6	6:57	12:35	5:15	. . .		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
	N-S.	S-N.	N-S.	S-N.	6	0:40	7:28	1:50	7:27	6	0:24	6:40	1:13	7:29
7	0:14	7:35	1:30	6:16	7	1:20	8:03	2:40	8:29	7	1:05	7:13	1:55	8:27
8	0:57	8:12	2:26	7:21	8	2:01	8:38	3:32	9:40	8	1:46	7:44	2:38	9:30
9	1:40	8:49	3:24	8:31	9	2:44	9:13	4:26	11:02	9	2:33	8:15	3:23	10:41
10	2:24	9:27	4:24	9:52	10	3:35	9:50	5:23	. . .	10	3:34	8:45	4:12	11:58
11	3:09	10:06	5:23	11:24		S-N.	N-S.	S-N.	N-S.	11	5:15	9:17	5:05	. . .
12	4:00	10:47	6:20	. . .	11	0:31	4:46	10:27	6:18		S-N.	N-S.	S-N.	N-S.
	S-N.	N-S.	S-N.	N-S.	12	1:54	6:48	11:08	7:11	12	1:10	7:22	9:56	6:00
13	0:58	5:05	11:27	7:13	13	3:00	8:40	11:58	7:59	13	2:09	8:50	10:50	6:57
14	2:23	6:38	12:08	8:00	14	3:50	9:55	12:48	8:42	14	2:55	9:34	12:25	7:50
15	3:30	8:25	12:47	8:43	15	4:29	10:42	1:45	9:21	15	3:32	10:00	1:43	8:39
16	4:23	9:50	1:25	9:21	16	5:03	11:14	2:41	9:58	16	4:02	10:18	2:48	9:23
17	5:07	10:58	2:02	9:55	17	5:31	11:34	3:33	10:32	17	4:27	10:35	3:43	10:05
18	5:45	11:49	2:40	10:26	18	5:55	11:50	4:23	11:07	18	4:48	10:52	4:36	10:44
19	6:19	12:27	3:20	10:56	19	6:16	12:06	5:13	11:41	19	5:07	11:15	5:28	11:22
20	6:48	12:53	4:04	11:27	20	6:33	12:28	6:06	. . .	20	5:27	11:45	6:20	. . .
21	7:14	1:11	4:53	11:58		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
22	7:35	1:26	5:45	. . .	21	0:16	6:52	12:58	7:01	21	0:01	5:49	12:22	7:15
	N-S.	S-N.	N-S.	S-N.	22	0:52	7:12	1:36	8:02	22	0:39	6:15	1:04	8:13
23	0:31	7:53	1:48	6:43	23	1:28	7:35	2:21	9:10	23	1:21	6:45	1:50	9:15
24	1:06	8:11	2:21	7:48	24	2:10	8:05	3:13	10:28	24	2:07	7:22	2:42	10:24
25	1:44	8:32	3:04	9:00	25	2:56	8:41	4:13	11:59	25	3:04	8:07	3:40	11:35
26	2:23	8:56	3:55	10:26	26	3:54	9:27	5:19	. . .	26	4:25	9:05	4:46	. . .
27	3:08	9:27	4:53	. . .		S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.
	S-N.	N-S.	S-N.	N-S.	27	1:20	5:19	10:28	6:28	27	0:42	6:08	10:25	5:56
28	0:11	4:00	10:05	5:55	28	2:24	7:10	11:45	7:35	28	1:35	7:31	12:03	7:06
29	1:47	5:09	10:54	6:58	29	3:13	8:34	1:12	8:35	29	2:22	8:30	1:35	8:10
30	2:58	6:40	11:54	7:58						30	3:02	9:19	2:52	9:07
31	3:50	8:22	1:03	8:54						31	3:39	10:03	3:58	9:57

The time used is Pacific Standard, for the meridian 120° west. The afternoon slacks are denoted by heavy-faced type.

About 7½ hours after high water at Astoria (Tide Tables, pp. 157-160), the ebb or north-going stream attains its maximum velocity, and 7½ hours after low water the flood reaches its maximum.

ADMIRALTY INLET, WASHINGTON, 1916.

TIMES OF SLACK WATER.

APRIL.					MAY.					JUNE.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.		N-S.	S-N.	N-S.	S-N.
1	4:13	10:44	4:56	10:44	1	3:55	10:57	5:58	11:20	1	0:29	4:01	11:36	7:28
2	4:45	11:23	5:50	11:28	2	4:25	11:32	6:47	. . .	2	1:31	4:25	12:05	8:08
3	5:18	12:00	6:41	. . .		N-S.	S-N.	N-S.	S-N.	3	2:36	4:46	12:33	8:46
	N-S.	S-N.	N-S.	S-N.	3	0:13	4:53	12:04	7:35	4	3:45	5:10	1:03	9:20
4	0:13	5:48	12:36	7:32	4	1:09	5:18	12:35	8:22	5	4:47	5:35	1:37	9:51
5	0:58	6:17	1:13	8:26	5	2:13	5:41	1:06	9:08	6	5:20	6:53	2:15	10:19
6	1:47	6:44	1:48	9:22	6	3:31	6:00	1:38	9:53	7	5:37	8:22	2:58	10:45
7	2:48	7:10	2:24	10:20	7	5:10	6:13	2:14	10:38	8	5:57	10:03	3:47	11:10
8	4:14	7:35	3:05	11:21	8	6:40*	. . .	2:54	11:20	9	6:23	11:52	4:43	11:37
9	6:10	7:50	3:50	. . .	9	7:25	7:57	3:41	11:56	10	6:57	1:32	5:47	. . .
	S-N.	N-S.	S-N.	N-S.	10	7:23	10:07	4:36	. . .		S-N.	N-S.	S-N.	N-S.
10	0:18	7:58	8:25	4:44		S-N.	N-S.	S-N.	N-S.	11	0:07	7:36	2:48	6:54
11	1:06	8:28	10:18	5:41	11	0:28	7:35	12:05	5:33	12	0:42	8:19	3:53	8:05
12	1:46	8:45	12:15	6:45	12	0:55	7:58	1:38	6:43	13	1:21	9:04	4:47	9:17
13	2:20	9:02	1:43	7:44	13	1:22	8:23	2:51	7:47	14	2:07	9:49	5:35	10:23
14	2:46	9:18	2:51	8:39	14	1:50	8:55	3:53	8:49	15	2:56	10:34	6:21	11:23
15	3:09	9:39	3:50	9:30	15	2:20	9:30	4:48	9:45	16	3:49	11:20	7:04	. . .
16	3:32	10:05	4:45	10:16	16	2:53	10:10	5:40	10:39		N-S.	S-N.	N-S.	S-N.
17	3:57	10:38	5:36	11:01	17	3:30	10:52	6:31	11:32	17	0:23	4:45	12:06	7:45
18	4:23	11:15	6:28	11:45	18	4:10	11:35	7:20	. . .	18	1:21	5:43	12:52	8:25
19	4:53	11:56	7:22	. . .		N-S.	S-N.	N-S.	S-N.	19	2:21	6:50	1:39	9:04
	N-S.	S-N.	N-S.	S-N.	19	0:28	4:56	12:21	8:08	20	3:24	8:02	2:26	9:43
20	0:31	5:27	12:40	8:17	20	1:27	5:46	1:08	8:55	21	4:27	9:25	3:17	10:23
21	1:22	6:07	1:27	9:12	21	2:33	6:45	1:57	9:40	22	5:28	10:58	4:10	11:06
22	2:21	6:55	2:17	10:08	22	3:46	7:53	2:49	10:25	23	6:26	12:34	5:10	11:47
23	3:35	7:51	3:13	11:03	23	4:58	9:18	3:45	11:10	24	7:19	2:01	6:24	. . .
24	5:04	9:05	4:14	11:56	24	6:01	10:57	4:44	11:53		S-N.	N-S.	S-N.	N-S.
25	6:21	10:41	5:20	. . .	25	6:58	12:38	5:50	. . .	25	0:28	8:08	3:14	7:49
	S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.	26	1:09	8:52	4:15	9:14
26	0:43	7:23	12:26	6:30	26	0:35	7:48	2:03	7:00	27	1:47	9:33	5:06	10:31
27	1:27	8:14	1:57	7:37	27	1:16	8:35	3:16	8:10	28	2:24	10:09	5:50	11:36
28	2:08	9:00	3:09	8:40	28	1:55	9:18	4:17	9:18	29	2:56	10:41	6:30	. . .
29	2:45	9:41	4:11	9:36	29	2:31	9:57	5:10	10:24		N-S.	S-N.	N-S.	S-N.
30	3:21	10:21	5:06	10:30	30	3:05	10:33	6:00	11:27	30	0:35	3:27	11:11	7:08
					31	3:35	11:05	6:45	. . .					

A high high water indicates that the following north-going stream will be strong, and a low low water indicates that the following south-going stream will be strong.

The ordinary maximum velocity of the flood or ebb stream is 1.9 knots between Nodule Point and Bush Point, and 3.5 knots one-half mile off Marrowstone Point.

*Current very weak, but does not reverse.

ADMIRALTY INLET, WASHINGTON, 1916.

TIMES OF SLACK WATER.

JULY.					AUGUST.					SEPTEMBER.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
1	1:27	3:58	11:39	7:40	1	1:19	5:39	12:18	7:35	1	1:11	7:45	1:09	7:07
2	2:09	4:25	12:08	8:10	2	1:36	6:33	12:51	7:52	2	1:52	8:48	1:48	7:33
3	2:42	5:17	12:39	8:35	3	2:03	7:32	1:26	8:10	3	2:40	10:02	2:34	8:07
4	3:03	6:13	1:11	8:57	4	2:39	8:40	2:03	8:32	4	3:37	11:26	3:31	8:51
5	3:25	7:17	1:47	9:15	5	3:25	10:00	2:45	9:00	5	4:40	12:45	4:51	9:51
6	3:50	8:31	2:27	9:36	6	4:19	11:36	3:36	9:35	6	5:48	1:49	6:35	11:12
7	4:28	10:00	3:10	10:00	7	5:19	1:11	4:39	10:21	7	6:57	2:38	8:00	. . .
8	5:15	11:41	4:00	10:30	8	6:21	2:25	6:03	11:20		S-N.	N-S.	S-N.	N-S.
9	6:04	1:23	5:02	11:07	9	7:23	3:20	7:40	. . .	8	0:40	8:00	3:19	9:00
10	6:57	2:43	6:14	11:52		S-N.	N-S.	S-N.	N-S.	9	2:02	8:57	3:55	9:48
11	7:49	3:44	7:38	. . .	10	0:30	8:22	4:03	9:00	10	3:15	9:48	4:29	10:32
	S-N.	N-S.	S-N.	N-S.	11	1:43	9:15	4:42	10:01	11	4:18	10:35	5:02	11:16
12	0:44	8:40	4:33	9:02	12	2:55	10:05	5:15	10:52	12	5:17	11:19	5:35	. . .
13	1:43	9:31	5:16	10:11	13	4:01	10:51	5:51	11:40		N-S.	S-N.	N-S.	S-N.
14	2:45	10:20	5:56	11:10	14	5:04	11:36	6:24	. . .	13	0:00	6:13	12:02	6:09
15	3:48	11:06	6:33	. . .		N-S.	S-N.	N-S.	S-N.	14	0:43	7:10	12:45	6:42
	N-S.	S-N.	N-S.	S-N.	15	0:23	6:05	12:19	6:58	15	1:26	8:08	1:31	7:16
16	0:04	4:51	11:52	7:09	16	1:17	7:06	1:02	7:33	16	2:11	9:11	2:25	7:50
17	0:59	5:54	12:37	7:45	17	2:07	8:09	1:44	8:10	17	2:58	10:18	3:31	8:27
18	1:52	7:00	1:20	8:22	18	2:58	9:17	2:32	8:47	18	3:49	11:31	5:16	9:07
19	2:47	8:08	2:04	8:58	19	3:53	10:35	3:25	9:26	19	4:44	12:40	7:03	10:00
20	3:45	9:23	2:50	9:37	20	4:50	12:00	4:40	10:09	20	5:41	1:34	8:23	11:15
21	4:45	10:49	3:41	10:17	21	5:49	1:19	6:30	10:57	21	6:39	2:27	9:12	. . .
22	5:44	12:21	4:43	11:00	22	6:46	2:26	8:12	11:53		S-N.	N-S.	S-N.	N-S.
23	6:40	1:47	6:09	11:43	23	7:38	3:19	9:27	. . .	22	0:42	7:34	3:06	9:45
24	7:33	3:00	7:53	. . .		S-N.	N-S.	S-N.	N-S.	23	1:53	8:24	3:38	10:07
	S-N.	N-S.	S-N.	N-S.	24	0:53	8:25	4:01	10:19	24	2:52	9:08	4:05	10:25
25	0:28	8:20	3:56	9:23	25	1:53	9:07	4:38	10:55	25	3:43	9:50	4:26	10:41
26	1:14	9:03	4:43	10:33	26	2:48	9:45	5:08	11:20	26	4:30	10:28	4:43	11:00
27	1:58	9:41	5:22	11:27	27	3:35	10:20	5:34	11:40	27	5:18	11:05	5:01	11:25
28	2:40	10:15	5:58	. . .	28	4:22	10:52	5:56	11:55	28	6:07	11:41	5:20	11:58
	N-S.	S-N.	N-S.	S-N.	29	5:08	11:26	6:12	. . .	29	7:00	12:19	5:43	. . .
29	0:09	3:23	10:46	6:29		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
30	0:41	4:06	11:16	6:56	30	0:11	5:56	12:00	6:28	30	0:36	7:54	12:58	6:11
31	1:03	4:51	11:47	7:19	31	0:37	6:48	12:34	6:45					

The time used is Pacific Standard, for the meridian 120° west. The afternoon slacks are denoted by heavy-faced type.

About 7½ hours after high water at Astoria (Tide Tables, pp. 157-160) the ebb or north-going stream attains its maximum velocity, and 7½ hours after low water the flood reaches its maximum.

ADMIRALTY INLET, WASHINGTON, 1916.

TIMES OF SLACK WATER.

OCTOBER.					NOVEMBER.					DECEMBER.				
Day.	Current turns from—				Day.	Current turns from—				Day.	Current turns from—			
	N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
1	1:19	8:54	1:44	6:45	1	2:38	10:32	4:28	8:24	1	3:09	10:36	5:23	10:13
2	2:08	9:58	2:40	7:28	2	3:36	11:23	5:48	9:59	2	4:06	11:18	6:24	. . .
3	3:04	11:05	4:58	8:25	3	4:40	12:10	6:51	11:47		S-N.	N-S.	S-N.	N-S.
4	4:07	12:07	5:38	9:45	4	5:50	12:52	7:44	. . .	3	0:00	5:10	12:00	7:18
5	5:16	1:02	7:01	11:27		S-N.	N-S.	S-N.	N-S.	4	1:34	6:19	12:43	8:07
6	6:26	1:46	8:00	. . .	5	1:26	7:00	1:32	8:30	5	2:57	7:35	1:24	8:53
	S-N.	N-S.	S-N.	N-S.	6	2:43	8:05	2:11	9:13	6	3:56	8:49	2:04	9:35
7	1:05	7:34	2:26	8:48	7	3:48	9:06	2:48	9:59	7	4:52	9:58	2:42	10:13
8	2:26	8:33	3:03	9:31	8	4:45	10:01	3:24	10:32	8	5:40	11:02	3:19	10:50
9	3:34	9:27	3:38	10:13	9	5:37	10:56	3:58	11:10	9	6:25	12:03	3:52	11:23
10	4:33	10:17	4:11	10:54	10	6:27	11:50	4:30	11:45	10	7:08	1:03	4:23	11:53
11	5:29	11:03	4:45	11:32	11	7:15	12:48	5:00	. . .	11	7:47	2:02	4:52	. . .
12	6:21	11:50	5:18	. . .		N-S.	S-N.	N-S.	S-N.		N-S.	S-N.	N-S.	S-N.
	N-S.	S-N.	N-S.	S-N.	12	0:20	8:02	1:51	5:28	12	0:23	8:25	3:02	5:22
13	0:12	7:14	12:38	5:50	13	0:52	8:49	3:07	5:54	13	0:52	9:00	4:00	5:58
14	0:50	8:07	1:33	6:20	14	1:24	9:33	4:37	6:20	14	1:23	9:31	4:47	6:53
15	1:28	9:03	2:39	6:51	15	2:00	10:18	6:15	6:35	15	1:58	10:00	5:20	8:08
16	2:08	10:00	4:08	7:22	16	2:37	11:00	7:02	8:00	16	2:36	10:25	5:46	9:43
17	2:47	10:58	5:57	7:54	17	3:21	11:38	7:18	10:00	17	3:20	10:48	6:13	11:34
18	3:33	11:53	7:28	8:35	18	4:11	12:09	7:36	. . .	18	4:10	11:13	6:44	. . .
19	4:24	12:43	8:11	10:33		S-N.	N-S.	S-N.	N-S.		S-N.	N-S.	S-N.	N-S.
20	5:23	1:23	8:36	. . .	19	0:02	5:12	12:37	7:55	19	1:20	5:12	11:42	7:21
	S-N.	N-S.	S-N.	N-S.	20	1:37	6:16	1:03	8:17	20	2:40	6:22	12:15	8:01
21	0:27	6:25	1:58	8:55	21	2:47	7:24	1:28	8:43	21	3:43	7:39	12:54	8:44
22	1:49	7:25	2:26	9:13	22	3:46	8:26	1:56	9:15	22	4:35	8:55	1:39	9:28
23	2:51	8:20	2:48	9:31	23	4:38	9:25	2:28	9:51	23	5:20	10:02	2:30	10:13
24	3:45	9:12	3:10	9:53	24	5:28	10:18	3:02	10:30	24	6:02	10:58	3:22	10:58
25	4:35	9:57	3:30	10:20	25	6:15	11:11	3:42	11:12	25	6:42	11:54	4:20	11:40
26	5:25	10:42	3:54	10:54	26	7:01	12:02	4:25	11:56	26	7:20	12:49	5:20	. . .
27	6:15	11:25	4:23	11:31	27	7:45	1:00	5:15	. . .		N-S.	S-N.	N-S.	S-N.
28	7:06	12:08	4:54	. . .		N-S.	S-N.	N-S.	S-N.	27	0:28	7:58	1:44	6:22
	N-S.	S-N.	N-S.	S-N.	28	0:41	8:29	1:58	6:11	28	1:12	8:34	2:41	7:30
29	0:13	8:57	12:57	5:31	29	1:28	9:12	3:05	7:17	29	1:58	9:10	3:42	8:48
30	0:57	8:49	1:54	6:16	30	2:17	9:55	4:15	8:37	30	2:45	9:50	4:45	10:17
31	1:45	9:41	3:00	7:11						31	3:35	10:30	5:47	. . .

A high high water indicates that the following north-going stream will be strong, and a low low water indicates that the following south-going stream will be strong.

The ordinary maximum velocity of the flood or ebb stream is 1.9 knots between Nodule Point and Bush Point, and 3.5 knots one-half mile off Marrowstone Point.



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STATIONS REFERRED TO

Quantities to be applied to the predictions for San Francisco Entrance (Golden Gate), pages 4 to 7. Results in one hundred and twentieth meridian time.

Station or locality.	Slack. Flood to ebb. (Apply to times marked E-W.)		Slack. Ebb to flood. (Apply to times marked W-E.)	
	h. m.		h. m.	
Blossom Rock.....	Subtract	0 48	Subtract	0 48
North Point.....	Subtract	0 53	Subtract	0 53
Five-eighths mile easterly from Rincon Point.....	Subtract	0 38	Subtract	0 38
One mile easterly from Yellow Bluff.....	Subtract	0 29	Subtract	0 29
Southampton Shoal.....	Add	0 25	Add	0 25
Point San Pablo.....	Add	1 00	Add	1 00
West end of Carquinez Strait.....	Add	1 30	Add	2 30

ADMIRALTY INLET, PUGET SOUND, AND DECEPTION PASS.

Quantities to be applied to predictions for Admiralty Inlet, pages 8 to 11. Results in one hundred and twentieth meridian time.

Station or locality.	Slack. Flood to ebb. (Apply to times marked S-N.)		Slack. Ebb to flood. (Apply to times marked N-S.)	
	h. m.		h. m.	
One-half mile off Point Wilson.....	Subtract	1 23	Subtract	0 30
One and five-eighths miles off Marrowstone Point.....	Add	0 12	Add	0 43
One-third mile off Marrowstone Point.....	Subtract	0 28	Subtract	0 28
One and nine-tenths miles S. $41\frac{1}{2}^{\circ}$ E. from Admiralty Head Light.....	Subtract	0 10	Subtract	0 27
Between Nodule Point and Bush Point.....		0 00		0 00
Possession Sound.....	Add	1 27	Add	1 29
Hood Canal, seven-eighths mile off Point Misery.....	Subtract	0 38	Subtract	0 38
Dubop Bay, near entrance.....	Subtract	0 20	Subtract	0 19
Agate Passage.....	Subtract	0 19	Subtract	0 31
Between Skiffs Point and West Point.....	Add	0 09	Add	0 09
Entrance to Richs Passage.....	Add	0 07	Add	0 07
Richs Passage.....	Add	0 19	Subtract	0 09
Northern Entrance to Colvos Passage.....	Add	0 42	Add	0 42
Deception Pass.....	Subtract	0h. to 3h.	Subtract	2 00